In the claims:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously Presented) A method for promoting one or more of growth, differentiation, or survival of a neuronal cell, comprising contacting said cell with an amount of a Sonic hedgehog polypeptide effective to promote one or more of growth, differentiation, or survival of said neuronal cell, wherein said Sonic hedgehog polypeptide binds a naturally occurring patched receptor.

2. (Previously Presented) A method for promoting one or more of growth, differentiation, or survival of a mammalian neuronal cell responsive to hedgehog induction, comprising contacting the cell with an amount of a Sonic hedgehog polypeptide effective to promote, relative to the cell in the absence of hedgehog treatment, at least one of (i) rate of growth, (ii) differentiation, or (iii) survival of the cell, wherein said Sonic hedgehog polypeptide binds a naturally occurring patched receptor.

3. (Original) The method of claim 2, which polypeptide mimics the effects of a naturally-occurring hedgehog protein on said cell.

4. **(Cancelled)**

5. (Previously Presented) The method of claim 2, wherein the polypeptide comprises an amino acid sequence at least 90% identical to an amino acid sequence designated in at least one of SEQ ID No:8, SEQ ID No:11, SEQ ID No:12, SEQ ID No:13, or an N-terminal fragment thereof of at least 100 contiguous amino acids that binds a naturally occurring patched receptor.

6. (Previously Presented) The method of claim 5, which polypeptide is an N-terminal auto-proteolytic fragment of a hedgehog polypeptide.

7-10. **(Cancelled)**

11. (Previously Presented) The method of claim 2, wherein the polypeptide promotes the differentiation of said neuronal cell.

12. (Previously Presented) The method of claim 11, wherein said neuronal cell is selected from any of a motor neuron, a cholinergic neuron, a dopaminergic neuron, a serotenergic neuron, or a peptidergic neuron.

13. (Previously Presented) The method of claim 11, wherein the polypeptide promotes survival of said neuronal cell.

14-22. **(Cancelled)**

23. (Previously Presented) A method for inducing a cell to differentiate to a neuronal cell type, comprising contacting said cell with an amount of a Sonic hedgehog polypeptide effective to induce said cell to differentiate to a neuronal cell type, wherein said Sonic hedgehog polypeptide binds a naturally occurring patched receptor.

24. (Previously Presented) The method of claim 23, wherein said polypeptide comprises an amino acid sequence encoded by a nucleic acid that hybridizes under stringent conditions, including a wash step of 0.2X SSC at 65 °C, to a nucleic acid sequence selected from any of SEQ ID NO: 1, SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6, and wherein said polypeptide binds a naturally occurring patched receptor.

25. (Previously Presented) The method of claim 24, which polypeptide is a bioactive fragment of a Sonic hedgehog polypeptide, and wherein said bioactive fragment binds a naturally occurring patched receptor.

26. (Previously Presented) The method of claim 23, wherein said neuronal cell type is selected from any of motor neurons, cholinergic neurons, dopaminergic neurons, serotenergic neurons, and peptidergic neurons.

27-41. **(Cancelled)**

42. (Previously Presented) The method of claim 1, wherein said hedgehog polypeptide comprises an amino acid sequence encoded by a nucleic acid that hybridizes under stringent conditions, including a wash step of 0.2X SSC at 65 °C, to a nucleic acid sequence selected from SEQ ID No: 1, SEQ ID No: 4, SEQ ID No: 5, and SEQ ID No: 6, and wherein said hedgehog polypeptide binds to a naturally occurring patched receptor.

43. (Previously Presented) The method of claim 2, wherein said hedgehog polypeptide comprises an amino acid sequence encoded by a nucleic acid that hybridizes under stringent conditions, including a wash step of 0.2X SSC at 65 °C, to a nucleic acid sequence selected from SEQ ID No: 1, SEQ ID No: 4, SEQ ID No: 5, and SEQ ID No: 6, and wherein said hedgehog polypeptide binds to a naturally occurring patched receptor.

44. (Previously Presented) The method of claim 42, wherein said hedgehog polypeptide comprises an N-terminal auto-proteolytic fragment of a hedgehog polypeptide, and wherein said hedgehog polypeptide binds a naturally occurring patched receptor.

45. (Previously Presented) The method of claim 43, wherein said hedgehog polypeptide comprises an N-terminal auto-proteolytic fragment of a hedgehog polypeptide, and wherein said hedgehog polypeptide binds a naturally occurring patched receptor.

46. (Previously Presented) The method of claim 6, wherein said hedgehog polypeptide comprises an N-terminal auto-proteolytic fragment of a hedgehog polypeptide, and wherein said hedgehog polypeptide binds a naturally occurring patched receptor.

47. (Previously Presented) The method of claim 42, wherein said hedgehog polypeptide comprises an amino acid sequence designated in one of SEQ ID No: 8, SEQ ID NO: 11, SEQ ID No: 12, SEQ ID No: 13, or an N-terminal fragment of at least 100 contiguous amino acids thereof that binds to a naturally occurring *patched* receptor.

48. (Previously Presented) The method of claim 43, wherein said hedgehog polypeptide comprises an amino acid sequence designated in one of SEQ ID No: 8, SEQ ID NO: 11, SEQ ID No: 12, SEQ ID No: 13, or an N-terminal fragment of at least 100 contiguous amino acids thereof that binds to a naturally occurring *patched* receptor.

49. (Previously Presented) A method for inducing a cell to differentiate to a neuronal cell phenotype, comprising contacting said cell with an amount of a Sonic hedgehog polypeptide comprising an amino acid sequence encoded by a nucleic acid that hybridizes under stringent conditions, including a wash step of 0.2X SSC at 65 °C, to a nucleic acid sequence selected from SEQ ID No: 1, SEQ ID No: 4, SEQ ID No: 5, and SEQ ID No: 6, wherein said hedgehog polypeptide binds to a naturally occurring patched receptor, and wherein said amount is effective to induce a cell to differentiate to a neuronal cell phenotype.

50. (Previously Presented) The method of claim 49, wherein said hedgehog polypeptide comprises an N-terminal auto-proteolytic fragment of a hedgehog polypeptide, and wherein said hedgehog polypeptide binds a naturally occurring patched receptor.

51. (Previously Presented) The method of claim 49, wherein said neuronal cell phenotype is selected from motor neurons, cholinergic neurons, dopaminergic neurons, serotonergic neurons, and peptidergic neurons.

52. (Previously Presented) A method for promoting one or more of growth, differentiation, or survival of a neural stem cell, comprising contacting the cell with an amount of a Sonic hedgehog polypeptide comprising an amino acid sequence encoded by a nucleic acid that hybridizes under stringent conditions, including a wash step of 0.2X SSC at 65 °C or higher stringency, to a nucleic acid sequence selected from SEQ ID NO: 1, SEQ ID NO: 4, SEQ ID NO: 5, and SEQ ID NO: 6, wherein said hedgehog polypeptide binds to a naturally occurring patched receptor, and wherein said amount is effective to promote growth, differentiation, or survival of the neural stem cell.

53. (Previously Presented) The method of claim 52, wherein said polypeptide comprises an N-terminal auto-proteolytic fragment of a hedgehog polypeptide, and polypeptide binds a naturally occurring patched receptor.

54. (Previously Presented) The method of claim 52, wherein said hedgehog polypeptide promotes differentiation of said neural stem cell.

55. (Previously Presented) The method of claim 54, wherein said hedgehog polypeptide promotes differentiation of said neural stem cell to a glial cell.

56. (Previously Presented) The method of claim 54, wherein said hedgehog polypeptide promotes differentiation of said neural stem cell to a neuron.